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easily so that a finger touch during the scrolling process would act solely as a "stop motion" signal regardless of the length of the touch; this would protect against the possibility of unintended "selections" resulting from inadvertently long touches that were intended only to "stop" the scrolling.

In contrast to stationary touching in step 108, if the system senses motion of the finger touch on the screen, the method reverts to step 104, again converting the speed and direction of motion of the touch into scrolling motion of the displayed data and restarting the scrolling process. As before, step 104 then proceeds directly into step 106.

In the embodiment of the system of this invention illustrated in FIG. 2, the system is shown to comprise a simple personal computer apparatus having a display screen 10, a central processing unit 12 and a keyboard 14 for inputting manual instruction to the processing unit 12. In accordance with convention, it will be understood that processing unit 12 includes an internal electronic memory unit (not shown) of conventional design and capabilities. Accordingly, for the purposes of this disclosure, the internal memory unit may be assumed to be the source of a scrollable data display capable of appearing on display screen 10 which is accessible to a hand or stylus device, here stylistically represented by the outline of a hand 16.

In use, the computer is set up in well-known manner to display the scrollable data on screen 10, and a hand/finger or stylus 16 is touched to the screen and moved down along the screen to impart an initial downward "scrolling" motion to the data display. Software in the computer interactively responds to the contact with the screen to create the desired displacement motion of the display and the internal timer facility now inherent in such computer apparatus, in cooperation with the programming of processing unit 12 responds to the start of motion by gradually decreasing the speed of displacement, as explained previously herein. When a desired point in the display is seen or approached, the user may apply a hand or stylus 16 to the screen to terminate the scrolling motion. Because the scrolling motion does not involve any moving parts with real or simulated mass, it is possible to stop the motion of the display instantly, without any difficulty or concern for inertial force consequences.

Accordingly, it will now be understood that the system and method of this invention facilitates a rapid, convenient and natural-feeling approach to accessing a scroll-like display of data on a computer screen.

In the embodiment represented in FIG. 3, the system of this invention is shown to comprise the essential elements of the computer apparatus of FIG. 2 without having the configuration of a computer. That is, the basic components of the system of this invention are here shown to comprise a microprocessor 42 which is in turn coupled to a keyboard 44, a timer means 43 and a display screen 40. Each of these components functions in the same manner as its counterparts in the embodiment of FIG. 2, with microprocessor 42 and the associated timer means 43 together, here serving the same function as central processing unit 12 in FIG. 2.

Although a preferred embodiment of the invention has been illustrated and described, those having skill in this art will recognize that various other forms and embodiments now may be visualized readily without departing significantly from the spirit and scope of the invention disclosed herein and set forth in the accompanying claims.

What is claimed is:

1. An improved touch-screen image scrolling system, comprising:

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an electronic image display screen;

a microprocessor coupled to said display screen to display information thereon and to receive interactive signals therefrom;

5 timer means associated with said microprocessor to provide timing capacity therefor;

a source of scroll format data capable of display on said display screen;

a keyboard coupled to said microprocessor to provide input control signals thereto;

finger touch program instructions associated with said microprocessor for sensing the speed, direction and time duration of a finger touch contact with said display screen;

15 scrolling motion program instructions associated with said microprocessor responsive to said duration of said finger touch contact such that, when said duration exceeds a first given preset minimum time and is accompanied by motion along the surface of said screen followed by separation of said finger touch from said screen, a scroll format display on said screen is caused to begin to scroll in said sensed direction and at said sensed initial speed;

20 time decay program instructions associated with said microprocessor for reducing the rate of scrolling displacement on said display screen at a given rate until motion is terminated;

stopping motion program instructions associated with said microprocessor for terminating scrolling displacement of the image on said screen upon first occurrence of any signal in the group of signals comprising:

(a) a substantially stationary finger touch on the screen enduring for a period longer than a preset minimum time, and

35 (b) an end-of-scroll signal received from said scroll format data source.

2. The improved touch-screen image scrolling system of claim 1, wherein said scrolling motion program instructions further comprise instructions to move said display in correspondence with movement of the finger touch, in response to movement following a touch having a stationary duration greater than said first preset given minimum time and less than a second given preset minimum time.

3. The improved touch-screen image scrolling system of claim 1, wherein said scrolling motion program instructions further comprise instructions to move a touch-selected item relative to the stationary display in correspondence with movement of said finger touch, in response to motion following a touch having a stationary duration greater than said second given preset minimum time.

4. The improved touch-screen image scrolling system of claim 1, wherein said group of signals for terminating scrolling, displacement of the image on said display screen further comprises

(a) a signal indicating that the rate of scrolling displacement on said screen has decayed to a value below a predetermined given value.

5. The improved touch-screen image scrolling system of claim 1, wherein said microprocessor, and said timer means together comprise a processing unit of a conventional computer.

6. The improved touch-screen image scrolling system of claim 5, wherein said source of scroll format data capable of display on said display screen comprises part of the memory of said conventional computer.

7. An improved touch-screen image scrolling system, comprising: